IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	Karer et al.	Docket No.:	0775/000003
Serial No.:	09/700,367	Confirmation No.:	6131
Filing Date:	11/15/2000	Examiner:	HANDAL, KAITY V
Customer No.:	26474	Art Unit:	1764

For: Gaseous phase fluidized-bed reactor

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

REPLACEMENT APPEAL BRIEF

Sir:

This is an appeal from the Examiner's final rejection of claims 1 – 4, 6 – 8, and 10 – 23 in the Office action mailed August 09, 2007.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account 14.1437. Please credit any excess fees to such account.

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Respectfully submitted,
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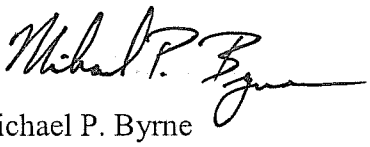

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REAL PARTY IN INTEREST:

The real party in interest is Basell Polyolefins, GmbH, Höchst, Germany.

RELATED APPEALS AND INTERFERENCES:

To the best of the undersigned's knowledge, there are no related interferences or judicial proceedings.

STATUS OF CLAIMS:

Claims 1 – 4, 6 – 8, and 10 – 23 are pending in the application

Claims 1 – 4, 6 – 8, and 10 – 23 stand rejected.

Claims 1 – 4, 6 – 8, and 10 – 23 are being appealed.

Claims 11 – 15 have been withdrawn from consideration by the Examiner.

Claims 5 and 9 are canceled.

STATUS OF AMENDMENT:

No amendment was filed subsequent to the final rejection of August 09, 2007.

SUMMARY OF CLAIMED SUBJECT MATTER:

The independent claims involved in the appeal are claims 1 and 16. Claims 2 – 4, 7 – 8 and 10 depend from claim 1. Claims 17 – 23 depend from claim 16.

Claim 1 is directed to a gas-phase fluidized-bed reactor.[1] The reactor must comprise a single reactor chamber,[2] a circulation gas line,[3] a circulation gas compressor,[4]

[1] Specification, page 1, lines 4 – 5.
[2] Specification, page 1, line 6.
[3] Specification, page 1, line 8.
[4] Specification, page 1, lines 8 – 9.

and a cooling device.[5] The single reactor chamber must not have an internal heat exchanger.[6] The single reactor chamber must be in the form of a vertical tube.[7] This vertical tube must have a region of transition in its lower section.[8] The region of transition must be adapted for transitioning the reaction gas from a circulation gas line into the reactor chamber,[9] and must be designed such that either no gas distributor plate is present,[10] or such that a gas distributor plate is present in which gas orifices occupy more than 50% of the total surface area of the gas distributor plate.[11] The lower section of the vertical tube must be followed by a reaction zone.[12] The reaction zone of the vertical tube must be followed by a calming zone in the upper section of the tube.[13]

Moreover, the claim requires the single reactor chamber, the circulation gas line, the circulation gas compressor, and the cooling device to be interconnected in a specific way.[14] First, the circulation gas line must be adapted to convey a reaction gas from the calming zone of the single reactor having each feature discussed above to the region of transition of the same single reactor. Second, the circulation gas compressor and the cooling device must be sited in the circulation gas line. Third, the circulation gas line must be connected to the lower section of the reactor chamber. Finally, the circulation gas line must be directly connected to the upper section of the reaction chamber.

As illustrated in Fig. 1, the specification differentiates between two types of connections. A skilled artisan would understand that gas circulation line (**3**) is directly connected to the upper section of the single reaction chamber, and connected (though not directly connected) to the single reaction chamber by virtue of the line's connection with components other than the reaction chamber.

Independent claim 16 is substantively identical to claim 1, except that it requires the single reactor chamber, which is in the form of a vertical tube, to *consist essentially of* a region of transition in the lower section of the tube, followed by a reaction zone which

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[5] Specification, page 1, line 9.
[6] Specification, original claim 1, page 7, lines 18 – 19.
[7] Specification, page 1, line 6.
[8] Specification, page 1, lines 9 – 12.
[9] Specification, page 3, lines 1 – 4.
[10] Specification, page 1, line 12.
[11] Specification, page 3, lines 1 – 7.
[12] Specification, page 1, line 11.
[13] Specification, page 1, line 33.
[14] Specification, page 1, lines 1 – 16 and Figure 1.

is followed by a calming zone in the upper section of the tube.

In response to the Notification of Non-Compliant Appeal Brief mailed February 21, 2008, Applicants add: Claim 16 is directed to a gas-phase fluidized-bed reactor.[15] The reactor must comprise a single reactor chamber,[16] a circulation gas line,[17] a circulation gas compressor,[18] and a cooling device.[19] The single reactor chamber must not have an internal heat exchanger.[20] The single reactor chamber must be in the form of a vertical tube.[21] This vertical tube must *consist essentially of* a region of transition in the lower section of the tube,[22] followed by a reaction zone[23] which is followed by a calming zone in the upper section of the tube.[24] The region of transition must be adapted for transitioning the reaction gas from a circulation gas line into the reactor chamber, [25] and must be designed such that either no gas distributor plate is present,[26] or such that a gas distributor plate is present in which gas orifices occupy more than 50% of the total surface area of the gas distributor plate.[27] Moreover, the claim requires the single reactor chamber, the circulation gas line, the circulation gas compressor, and the cooling device to be interconnected in a specific way.[28] First, the circulation gas line must be adapted to convey a reaction gas from the calming zone of the single reactor having each feature discussed above to the region of transition of the same single reactor. Second, the circulation gas compressor and the cooling device must be sited in the circulation gas line. Third, the circulation gas line must be connected to the lower section of the reactor chamber. Finally, the circulation gas line must be directly connected to the upper section of the reaction chamber. As illustrated in Fig. 1, the specification differentiates between two types of connections. A skilled artisan would understand that gas circulation line (**3**) is directly connected to the upper section of the single reaction chamber, and connected

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[15] Specification, page 1, lines 4 – 5.
[16] Specification, page 1, line 6.
[17] Specification, page 1, line 8.
[18] Specification, page 1, lines 8 – 9.
[19] Specification, page 1, line 9.
[20] Specification, original claim 1, page 7, lines 18 – 19.
[21] Specification, page 1, line 6.
[22] Specification, page 1, lines 9 – 12.
[23] Specification, page 1, line 11.
[24] Specification, page 1, line 33.
[25] Specification, page 3, lines 1 – 4.
[26] Specification, page 1, line 12.
[27] Specification, page 3, lines 1 – 7.
[28] Specification, page 1, lines 1 – 16 and Figure 1.

(though not directly connected) to the single reaction chamber by virtue of the line's connection with components other than the reaction chamber.

Claim 4 is directed to a reactor as claimed in claim 1, wherein flow reshapers are sited in the region of transition of the reaction gas from the circulation gas line into the reactor chamber in order to reshape the flow pulse of the incoming gas,[29] said reshapers being arranged so as to bring about substantially homogeneous introduction of the gas flow into the fluidized bed.[30] Similarly, claim 19 is directed to a reactor as claimed in claim 16, wherein flow reshapers are sited in the region of transition of the reaction gas from the circulation gas line into the reactor chamber in order to reshape the flow pulse of the incoming gas, said reshapers being arranged so as to bring about substantially homogeneous introduction of the gas flow into the fluidized bed.

Claims 7 and 8 are directed to a reactor as claimed in claim 1, which further comprises a closable flap situated in the region of transition from the circulation gas line into the lower section of the reactor chamber which flap is adapted to prevent the penetration of polymer particles into the circulation gas line when the compressor is switched off.[31] Similarly, claims 21 and 22 are directed to a reactor as claimed in claim 16, which further comprises a closable flap situated in the region of transition from the circulation gas line into the lower section of the reactor chamber which flap is adapted to prevent the penetration of polymer particles into the circulation gas line when the compressor is switched off. Claims 8 and 22 also require that the closable flap is provided with uniformly distributed holes having a diameter of between 1 and 7 mm.[32]

Summary of the subject matter of other dependent claims is omitted as unnecessary.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Whether the examiner erred in rejecting:

[29] Specification, page 3, lines 10 – 13.
[30] Specification, page 3, lines 22 – 24.
[31] Specification, page 4, line 39 – page 5, line 5.
[32] Specification, page 5, lines 1 – 5.

I. Claims 1, 3, 4, 6, 10, 16, 18 – 20 and 23 under 35 U.S.C. §103(a) over *Govoni et al.* (US 6,413,477); and

II. Claims 7, 8, 21 and 22 under 35 U.S.C §103(a) over *Govoni et al.* in view of *Lubbock* (US 2,636,712).

ARGUMENT:

Appellants respectfully submit that the examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. §103, because the cited references do not teach or suggest all of the claim limitations, and at the time the claimed invention was made a person having ordinary skill in the art had no apparent reason to make the modifications necessary to arrive at the presently claimed invention.

"Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved."[33] Moreover, when applying 35 U.S.C. § 103, the following tenets of patent law must be adhered to:

(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.[34]

Regarding the requirement that the invention must be assessed as a whole, Appellants respectfully note that "[t]his 'as a whole' assessment of the invention requires a showing that an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would have selected the various elements from the prior art and combined them in the

[33] Graham v. John Deere, 383 U.S. 1, at 17 – 18, 148 USPQ 459 (1966).
[34] *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986) (emphasis added).

claimed manner."[35]

In the case of *Innovad, Inc. v. Microsoft Corporation*, the United States Court of Appeals for the Federal Circuit constructed a claim that read,

> "[a] telephone dialer system, comprising ... a single, bi-state switch operable from the exterior of said case for activating said signal means to produce said sequence of dual tone modulated frequency signals ...."

The Court held that,

> "[t]his language about 'a single, bi-state switch,' ... does not preclude a dialer unit from having other switches as long as a single switch activates the signal means to produce dial tones. The claim language explains well the function of the single switch. This language alone does not preclude other switches for other functions that may not be specified in this claim. Indeed, by using the transition term 'comprising' at the outset of the claim, the claim drafter signaled that an accused device could have additional elements-such as switches-beyond those expressly recited and still literally fall within the claim terms."[36]

The present claims are directed to "[a] gas-phase fluidized-bed reactor for polymerizing ethylenically unsaturated monomers, which comprises a single reactor chamber...." Applicants respectfully submit that when this claim is considered as a whole, the claim explains well the function of the single reactor chamber, i.e., the single reactor chamber is for polymerizing ethylenically unsaturated monomers. By using the transition term "comprising," Applicants have signaled that an accused device could have additional elements – even reactors – beyond those expressly recited and still literally fall within the claim terms. However, in order to fall with the claim terms a single reactor must be utilized for polymerizing ethylenically unsaturated monomers.

Applicants respectfully submit that although the phrase "for polymerizing ethylenically unsaturated monomers" appears in the preamble of the claim, a skilled

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[35] Princeton Biochemicals, Inc. v. Beckman Coulter, Inc., 411 F.3d 1332, 1337 (Fed.Cir.2005).
[36] *Innovad, Inc. v. Microsoft Corporation*, 260 F.3d 1326 at 1333 (2001). *See also AFG Indus. v. Cardinal IG Co.*, 239 F.3d 1239, 1244-45, 57 USPQ2d 1776, 1780 (Fed.Cir.2001).

artisan would readily understand that the single reactor chamber is for polymerizing ethylenically unsaturated monomers. After all, "[c]laims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation'."[37] The present specification states that "[t]he polymerization process of the invention is carried out such that the polymerization takes place essentially in the reactor chamber (1) and only small amounts of particles circulate with the circulation gas."[38] Of course, "[i]nterpretation of descriptive statements in [an application's] written description is a difficult task, as an inherent tension exists as to whether a statement is a clear lexicographic definition or a description of a preferred embodiment."[39] Applicants respectfully submit, however, that the claims, the specification, and the figures all make clear that in order to fall with the scope of the present invention a single reactor must be utilized for polymerizing ethylenically unsaturated monomers.

On the other hand, the *Govoni et al.* reference discloses a "process for the gas-phase polymerization of olefins carried out in two interconnected polymerization zones...."[40] The Examiner has never argued that it would have been obvious to modify the reference such that the polymerization takes place in a single reactor chamber, as required by the present claims. Indeed, the reference emphatically teaches away from any such modification in numerous instances (*See* column 1, lines 7 – 19, column 5, lines 8 – 22, column 6, lines 24 – 46, column 7, lines 26 – 54). Instead, the Examiner has argued that "the claims use 'comprising' which is open transitional language and does not exclude a reference from having more elements than those recited in the instant claims."[41] As discussed above, this argument is not in line with relevant case law.

Moreover, any modification of the *Govoni et al.* reference such that the polymerization takes place in a single reactor chamber would render the resulting reactor unsuitable for its intended purpose. Such a modification would not ensure the output per unit reactor volume attained by a reactor having two polymerization zones, which is the

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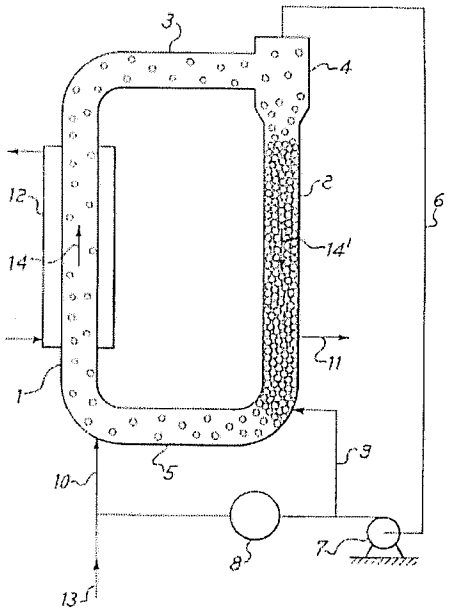
[37] *In re Marosi*, 710 F.2d 799 at 802, 218 USPQ 289 at 292 (Fed. Cir. 1983) (quoting In re Okuzawa, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976)).
[38] Specification, page 5, lines 31 – 34.
[39] *Altiris Inc. v. Symantec Corp.*, 318 F.3d 1363, 1371, 65 USPQ2d 1865, 1869-70 (Fed. Cir. 2003).
[40] Column 1, lines 7 – 9 of Govoni et al. (US 6,413,477).
[41] Page 2, lines 15 – 16 of the Office action mailed October 31, 2007.

main purpose of the *Govoni et al.* loop reactor (*See* column 5, lines 1 – 6).

It is respectfully submitted, therefore, that a *prima facie* case of obviousness has not been established.

Govoni et al. also provide the following explanation referring to their Fig. 1. "The two polymerization zones [**1** and **2**] are appropriately interconnected by the sections **3** and **5**."[42]

Fig.1



The reference explains that "the polymer and the gaseous mixture leaving the first polymerization zone **1** are conveyed to a solid/gas separation zone **4**."[43] Moreover, the reference goes on to specify that "[t]he solid/gas separation can be effected by using conventional separation means such as, for example a separator of the inertial type or preferably centrifugal type, or a combination of the two. The centrifugal separator (cyclone) can be of the axial, spiral, helical or tangential type."[44] Finally the reference makes clear that "[t]he gaseous mixture leaving the separation zone **4** is compressed, cooled and transferred … to the first polymerization zone **1**. This transfer can be effected by means of a recycle line **6** for the gaseous mixture, equipped with means for the

[42] Column 5, indicated lines 66 - 67 of Govoni et al. (US 6,413,477).
[43] Column 6, lines 24 – 27 of Govoni et al. (US 6,413,477).
[44] Column 6, lines 27 – 32 of Govoni et al. (US 6,413,477).

compression **7** and cooling **8** ...."[45]

Appellants respectfully submit that a person having ordinary skill in the art would understand that section **3** of Fig. 1 corresponds to lines **21** of Fig. 2, or to line **71** of Fig. 3. According to *Govoni et al.* lines **3**, **21** and **71** are not gas circulation lines, but are polymerization zone interconnecting lines adapted to facilitate discharge of polymer from the first reactor to the separator. A skilled artisan would not have confused these lines with the gas recycle lines (**6**, **36**, and **81**).

Fig.2

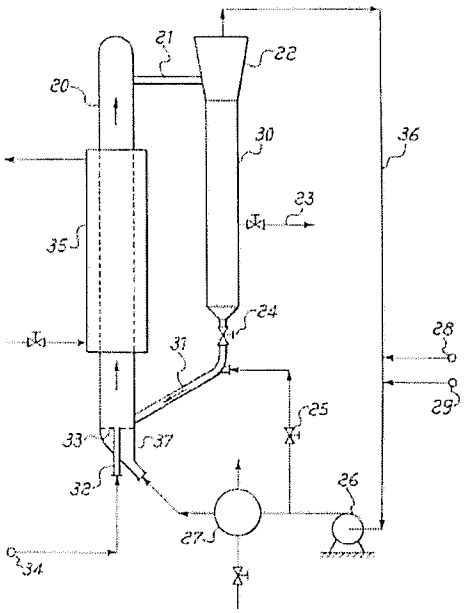
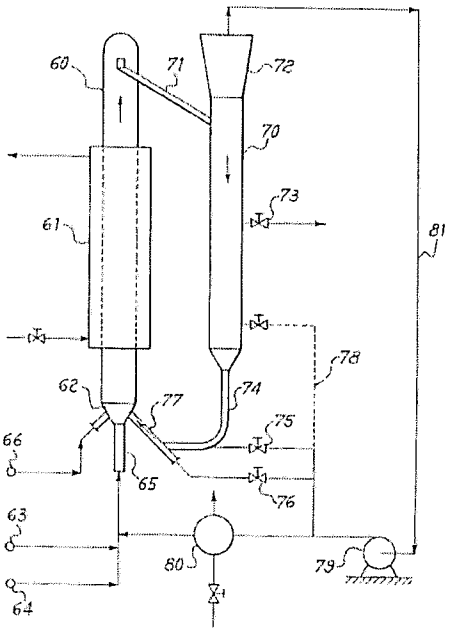


Fig.3



The reference also states that "[t]he first line **21** can be horizontal or have a slope in the direction of gravity in order to facilitate discharge of polymer (see the configuration of line **71** in FIG. 3)."[46] To summarize:

- Lines **6**, **36** and **81** are recycle lines, which must be connected to a solid/gas separation zone **4**, **22**, or **72**.

- Lines **3**, **21** and **71** are adapted to facilitate discharge of polymer from the first reactor to the separator, and cannot be characterized as circulation gas lines.

[45] Column 6, indicated lines 34 – 40 of Govoni et al. (US 6,413,477).
[46] Column 11, indicated lines 29 – 31 of Govoni et al. (US 6,413,477).

The Examiner has suggested that at the time the present invention was made, a skilled artisan would have found it obvious to modify the process/apparatus that is expressly shown and described by *Govoni et al.*, on the basis of the following portions of the *Govoni et al.* reference:

- "[t]he upper region of the first reactor **20** can have a cylindrical shape with a diameter equal to that of the reactor or preferably can be of frustoconical geometry with the broad end uppermost[,]"[47] and

- "the gas distributor means in the first reactor **60** can be replaced by a cylindrical line **65**, through which the gas flows at high velocity and which is connected to the reactor **60** by a frustoconical section **62** ...."[48]

Appellants respectfully submit that even if these modifications were made to the first reactor, the resulting process/apparatus would not have all of the required features of the claimed invention as a whole. The present claims require a circulation gas line that is directly connected to the upper section of a reaction chamber that possesses all of the required features of the single reactor chamber according to claim 1. The Examiner has never suggested that a skilled artisan would have found it obvious to directly connect recycle line **6**, **36** or **81** to the first reactor. Instead, the Examiner has simply characterized lines **3**, **21** and **71** as circulation gas lines. As discussed above, this characterization is improper.

With regard to independent claim 16, Appellants respectfully submit that the Examiner's proposed modification would not result in a single reactor chamber in the form of a vertical tube, said reactor chamber consisting essentially of a region of transition in the lower section of the tube, followed by a reaction zone, which is followed by a calming zone in the upper section of the tube. The Examiner's proposed modification is based on *Govoni et al.'s* statement that "the gas distributor means in the

[47] Column 11, lines 25 – 28 of Govoni et al. (US 6,413,477).
[48] Column 10, lines 63 – 67 of Govoni et al. (US 6,413,477).

first reactor **60** can be replaced by a cylindrical line **65**, through which the gas flows at high velocity and which is connected to the reactor **60** by a frustoconical section **62**...."[49] Since the cylindrical line and the frustoconical section are classified as *replacements* for the gas distributor means, the cylindrical line and the frustoconical section should be deemed to be part of the first reactor.

> As further support: Appellants respectfully submit that the rationale underlying the Examiner's rejection of claims 21 and 22, which is discussed below, support a conclusion that the cylindrical line and the frustoconical section are part of the first reactor. Claims 21 – 22 are directed to a reactor as claimed in claim 16, which further comprises a closable flap situated in the region of transition. In the rejection of claims 21 and 22, the Examiner argued that it would have been obvious to use a slide valve "in the area where the circulation gas inlet (65) and the reactor (6) connect ...."[50] Thus, the Examiner has already characterized at least the frustoconical section as being part of the first reactor. Otherwise, the Examiner could not have argued that the addition of a slide valve "in the area where the circulation gas inlet (65) and the reactor (6) connect"[51] meets the claim limitation that a closable flap is situated in the region of transition.

Thus, if the Examiner's proposed modifications were made, the first reactor would not consist essentially of a region of transition in the lower section of the tube, followed by a reaction zone, which is followed by a calming zone in the upper section of the tube.

Claims 4 and 19 are directed to a reactor as claimed in claims 1 and 16, respectively, wherein flow reshapers are sited in the region of transition of the reaction gas from the circulation gas line into the reactor chamber in order to reshape the flow pulse of the incoming gas, said reshapers being arranged so as to bring about substantially homogeneous introduction of the gas flow into the fluidized bed. The Examiner has not addressed this feature of the present invention except to say that *Govoni et al.* disclose an apparatus comprising a reactor chamber "wherein there is a

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[49] Column 10, lines 63 – 67 of Govoni et al. (US 6,413,477).
[50] Page 5, lines 5 – 9 of the present Office action (emphasis added).
[51] Page 5, lines 5 – 9 of the present Office action (emphasis added).

single gas distribution plate (33) within the reactor (see figure 2) to shape flow homogenously to the reaction bed...."[52] Of course, since claims 4 and 19 are dependent from claims 1 and 16, respectively, they include the limitation that the region of transition is designed such that either no gas distributor plate is present, or such that only a gas distributor plate is present which has a total surface area and has gas orifices, and wherein said gas orifices occupy more than 50% of the total surface area of said gas distributor plate. Appellants respectfully submit, therefore, that the present rejection does not address all of the features required by claims 4 and 19.

The rejection of claims 7, 8, 21 and 22 under 35 U.S.C §103(a) over *Govoni et al.* in view of *Lubbock* (US 2,636,712) is also in error and should be overturned. The Examiner cites *Lubbock* in an attempt to compensate for the fact that "*Govoni et al.* fails to disclose a closable flap with holes at the region of transition...."[53] *Lubbock* does not compensate for the shortcomings discussed above, and therefore this rejection should be withdrawn.

Claims 7 – 8 and claims 21 – 22 are directed to a reactor as claimed in claims 1 and 16, respectively, which further comprises a closable flap situated in the region of transition from the circulation gas line into the lower section of the reactor chamber which flap is adapted to prevent the penetration of polymer particles into the circulation gas line when the compressor is switched off. Making reference to Fig. 3, the Examiner argues that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to use the slide valve of Lubbock in the area where the circulation gas inlet (65) and the reactor (6) connect in order to control the amount of particles which would fall through the grid and into the circulation line."[54] Particles falling through "the grid" and into the circulation line was not disclosed by *Govoni et al.* to be a problem. The Examiner has not pointed to any apparent reason to make such a modification that existed in the prior art. This rejection is clearly based entirely on a hindsight reconstruction of the claimed invention. It is well-settled that "'[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to

[52] Page 3, lines 14 – 15 of the final Office action mailed August 09, 2007.
[53] Page 5, lines 1 – 2 of the final Office action mailed August 09, 2007.
[54] Page 5, lines 5 – 9 of the present Office action (emphasis added).

deprecate the claimed invention.'"[55]

Finally, with regard to the rejection of claims 8 and 22, which also require that the closable flap is provided with uniformly distributed holes having a diameter of between 1 and 7 mm, Appellants respectfully submit that the Examiner has erroneously characterized the determination of this diameter range as routine experimentation. "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation."[56] The Examiner has not identified any recognized result that a skilled artisan would have associated with the diameter of uniformly distributed holes on a closable flap situated in the region of transition of a reactor according to the present claims. Thus, the present rejection is in error and should be withdrawn.

Appellants respectfully submit that the claimed invention is non-obvious over the cited references, and that the rejections under 35 U.S.C §103(a) should be overturned. Favorable action is solicited.

[55] *In re* Fritch, 972 F.2d 1260, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992) (quoting *In re* Fine, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988).
[56] MPEP § 2144.05, citing *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

CLAIMS APPENDIX:

1. (previously presented) A gas-phase fluidized-bed reactor for polymerizing ethylenically unsaturated monomers, which comprises

- a single reactor chamber (1) in the form of a vertical tube which has a region of transition in the lower section of the tube, followed by a reaction zone which is followed by a calming zone (2) in the upper section of the tube,

- a circulation gas line (3),

wherein the circulation gas line is connected to the lower section of the reactor chamber,

wherein the circulation gas line is directly connected to the upper section of the reaction chamber, and

wherein the circulation gas line is adapted to convey a reaction gas from the calming zone to the region of transition, and

- a circulation gas compressor (4) and a cooling device (5), the circulation gas compressor (4) and the cooling device (5) being sited in the circulation gas line (3),

wherein the region of transition is adapted for transitioning the reaction gas from the circulation gas line into the reactor chamber, and wherein the

region of transition is designed such that either no gas distributor plate is present, or such that only a gas distributor plate is present which has a total surface area and has gas orifices, and wherein said gas orifices occupy more than 50% of the total surface area of said gas distributor plate, and

wherein the gas-phase fluidized-bed reactor has no internal heat exchanger in the reactor chamber.

2. (previously presented) A reactor as claimed in claim 1, wherein there is no gas distributor plate in the region of transition of the reaction gas from the circulation gas line into the reactor chamber or in the lower section of the reactor chamber itself.

3. (previously presented) A reactor as claimed in claim 1, wherein, in the region of transition of the reaction gas from the circulation gas line into the reactor chamber or in the lower section of the reactor chamber itself, there is a gas distributor plate the total surface area of whose gas orifices is more than 90% of the total surface area of said gas distributor plate.

4. (previously presented) A reactor as claimed in claim 1, wherein flow reshapers are sited in the region of transition of the reaction gas from the circulation gas line into the reactor chamber in order to reshape the flow pulse of the incoming gas, said reshapers being arranged so as to bring about substantially

homogeneous introduction of the gas flow into the fluidized bed.

5. (canceled)

6. (previously presented) A reactor as claimed in claim 1, having an internal diameter of the reactor chamber (1) of more than 0.5 m.

7. (previously presented) A reactor as claimed in claim 1, which further comprises a closable flap situated in the region of transition from the circulation gas line into the lower section of the reactor chamber which flap is adapted to prevent the penetration of polymer particles into the circulation gas line when the compressor is switched off.

8. (previously presented) A reactor as claimed in claim 7, wherein the closable flap is provided with uniformly distributed holes having a diameter of between 1 and 7 mm.

9. (canceled)

10. (previously presented) A reactor as claimed in claim 1, wherein between the reactor chamber (1) and the compressor (4) and the cooling devide (5) of the circulation gas line there is sited a cyclone to separate off polymer and catalyst particles from the circulation gas.

11. (withdrawn - previously presented) A process for polymerizing ethylene or for copolymerizing ethylene with C_3- to C_8-a-olefins, wherein the (co)polymerization is conducted in a reactor as claimed in claim 1.

12. (withdrawn - previously presented) A process as claimed in claim 11, wherein polymerization is conducted in the presence of condensed monomers and/or condensed hydrocarbons.

13. (withdrawn - previously presented) A process as claimed in claim 11, wherein a mixture comprising gaseous and liquid monomers is fed into the reactor chamber.

14. (withdrawn - previously presented) A process as claimed in claim 11, wherein to prepare a (co)polymer of a preselected density d the (co)polymerization is conducted at a temperature situated within a range bounded by an upper limit of equation (I)

$$T_H = 171 + \frac{6d'}{0.84-d'} \qquad (I)$$

and a lower limit of equation (II)

$$T_L = 173 + \frac{7.3d'}{0.837-d'} \qquad (II)$$

where

T_H is the highest reaction temperature in °C

T_L is the lowest reaction temperature in °C

d' is the numerical value of the density (d) [g/cm^3] of the (co)polymer to be prepared.

15. (withdrawn - previously presented) A process for preparing EPDM, wherein the copolymerization is conducted in a reactor as claimed in claim 1.

16. (previously presented) A gas-phase fluidized-bed reactor for polymerizing ethylenically unsaturated monomers, which comprises

- a single reactor chamber (1) in the form of a vertical tube said reactor chamber consisting essentially of a region of transition in the lower section of the tube, followed by a reaction zone which is followed by a calming zone (2) in the upper section of the tube,

- a circulation gas line (3), wherein the circulation gas line is connected to the lower section of the reactor chamber, wherein the circulation gas line is directly connected to the upper section of the reaction chamber, and wherein the circulation gas line is adapted to convey a reaction gas from the calming zone to the region of transition, and

- a circulation gas compressor (4) and a cooling device (5), the circulation gas compressor (4) and the cooling device (5) being sited in the circulation gas line (3),

wherein the region of transition is adapted for transitioning the reaction gas from the circulation gas line into the reactor chamber, and wherein the reactor chamber has, in the region of transition, either no gas distributor plate or has a gas distributor plate having a total surface area and gas orifices which occupy more than 50% of the total surface area of said gas distributor plate, and wherein the gas-phase fluidized-bed reactor has no internal heat exchanger in the reactor chamber.

17. (previously presented) A reactor as claimed in claim 16, wherein there is no gas distributor plate in the region of transition of the reaction gas from the circulation gas line into the reactor chamber or in the reaction zone of the reactor chamber.

18. (previously presented) A reactor as claimed in claim 16, wherein, in the region of transition of the reaction gas from the circulation gas line into the reactor chamber or in the reaction zone of the reactor chamber, there is a gas distributor plate the total surface area of whose gas orifices is more than 90% of the total surface area of said gas distributor plate.

19. (previously presented) A reactor as claimed in claim 16, wherein flow reshapers are sited in the region of transition of the reaction gas from the circulation gas line into the reactor chamber in order to reshape the flow pulse of the incoming gas, said reshapers being arranged so as to bring about substantially

homogeneous introduction of the gas flow into the fluidized bed.

20. (previously presented) A reactor as claimed in claim 16, having an internal diameter of the reactor chamber (1) of more than 0.5 m.

21. (previously presented) A reactor as claimed in claim 16, which further comprises a closable flap situated in the region of transition from the circulation gas line into the lower section of the reactor chamber which flap is adapted to prevent the penetration of polymer particles into the circulation gas line when the compressor is switched off.

22. (previously presented) A reactor as claimed in claim 20, wherein the closable flap is provided with uniformly distributed holes having a diameter of between 1 and 7 mm.

23. (previously presented) A reactor as claimed in claim 16, wherein between the reactor chamber (1) and the compressor (4) and the cooling devide (5) of the circulation gas line there is sited a cyclone to separate off polymer and catalyst particles from the circulation gas.

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS AAPPENDIX:

None.